NORTH CAROLINA STATE UNIVERSITY
Department of Mathematics
MA 141: Distance Education

To: MA 141-651 Students, 10-week Summer Session 2022, May 18 - August 2
From: Dr. John Griggs (**https://jrgriggs.wordpress.ncsu.edu**) (jrgriggs@ncsu.edu)

Welcome to MA 141! I sincerely hope you have a positive learning experience using the taped lectures. I trust that you will contact me when you need my help. The two ways to reach me are through my email (jrgriggs@ncsu.edu), or by phone (personal cell: 919-608-9726). Please **identify yourself as a MA 141 distance education student**. If you are asking a question about a specific problem, clearly identify the problem/section and write out or type out all of your steps so I can try to help you find your mistake, if there is one. A teaching assistant will also be available for your questions; your TA/grader this summer is **Jordan Jackson (jgjacks4@ncsu.edu)**. If you have mediasite problems, please notify DELTA Support Services (515-9030).

The videos were taped during the Fall '16 semester (15 week-session) in a studio/classroom on campus. The textbook for this course is Calculus I for Engineers and Scientists, by Franke, Griggs and Norris. It is an e-book and is housed on WebAssign under RESOURCES. You will pay one fee that covers both the WebAssign homework and the e-book. We have been working on this book for more than six years; please read it and study the examples.

If you do not live on campus or in Raleigh, please contact **me** (not DELTA) immediately so we can arrange for a mutually agreeable proctor at a local community college, university or testing center. The proctor should be faculty, preferably in the mathematics department; no libraries/librarians; no relatives. Please send me the **name, title and email address** of the prospective proctor when you have identified that person so I can contact him/her and send out the proctor agreement form. Tests can also be taken at the **DELTA Testing Center** here in Raleigh on Centennial Campus during the hours that they are open. You will receive (or have received) information from them about scheduling tests there. Reservations/appointments are required.

Final average: **60% Test Average**; **30% Final Exam**; **10% Webassign Homework**

A "built-in" curve for all students is to have your worst test count half as much as the other two tests. It will not be replaced, but will hopefully "hurt you less" by only counting it once while the other two tests are counted twice in determining your test average.

TEST DATES:
Test 1: Tuesday, June 7 or Wednesday, June 8
Test 2: Thursday, June 30 or Friday, July 1
Test 3: Friday, July 22 or Monday, July 25
Final Exam: Monday, August 1 or Tuesday, August 2

Homework will be delivered/submitted over the web using Webassign: webassign.net
Please contact me or the TA when you need help with the homework problems.. The answers to the odd problems in the book are at the end of each section. I have tried to work out a lot of similar problems in class. Please note the "communication" of the step-by-step process. Your work on your tests communicates your mathematical understanding of the concepts. Take good class notes. Work additional problems from each section; just the webassign by itself is not enough to prepare for excellence.

NORTH CAROLINA STATE UNIVERSITY
Department of Mathematics
MA 141 – 651
10-Week Summer Session 2022

PACING GUIDE

Wednesday, May 18 through Monday, June 6:

Textbook coverage: Chapter 0 (all); Chapter 1 (all); Chapter 2 (2.1, 2.2, 2.3)
(lecture #1 – lecture #18)

Test #1: Tuesday, June 7 or Wednesday, June 8

Thursday, June 9 through Wednesday, June 29:

Textbook coverage: Chapter 2 (2.4, 2.5, 2.6, 2.7); Chapter 3 (3.1, 3.2, 3.3, 3.4)
(lecture #19 – lecture #39)

Test #2: Thursday, June 30 or Friday, July 1

Tuesday, July 5 through Thursday, July 21:

Textbook coverage: Chapter 3 (3.5, 3.6); Chapter 4 (all); Chapter 5 (5.1)
(lecture #40 – lecture #56)

Test #3: Friday, July 22 or Monday, July 25

Tuesday, July 26 through Friday, July 29:

Textbook coverage: Chapter 5 (5.2); review entire textbook for final exam
(lecture #57 - #63 for new material; lecture #1 - #63 for final exam)

<u>Comprehensive</u> Final Exam: Monday, August 1 or Tuesday, August 2

NORTH CAROLINA STATE UNIVERSITY
Department of Mathematics
Objectives MA141
Summer 2022

I. Recognize and graph equations for conic sections and for parametric equations.

II. Conceptual and visual representation of limits, continuity, differentiability, and tangent line approximations for functions at a point. (Use Maple to find limits, automated differentiate, and use the limit-definition of derivative to differentiate.)

III. Apply the limit theorems, the Squeeze Theorem, left and right limits, and limits involving infinity and L'Hospital's Rule.

IV. Approximate roots of an equation using Intermediate Value Theorem and Newton's Method. (Use Maple to find exact solution to equations and to approximate roots via Newton's Method)

V. Apply the power rule, product rule, quotient rule and the chain rule to functions explicitly and implicitly for finding derivatives.

VI. Use derivatives in practical applications, such as distance, velocity, acceleration and related rates. Use first and second derivative tests to optimize functions and to find critical numbers, inflection points, extreme points, and the shape of the graph.

VII. Sketch a possible graph of a function given the graph of its derivatives.

VIII. Antidifferentiate basic functions, use Riemann Sums to estimate areas under the curve, and apply Fundamental Theorem of Calculus to evaluate definite integrals.

Note: There is a brief review of precalculus, including algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions including construction of new functions from old.